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What everybody should know about chinaware... [New York, 1933]

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WHAT EVERYBODY SHOULD KNOW ABOUT CHINAWARE

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P. A. S. 1932

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WHAT EVERYBODY
SHOULD KNOW ABOUT
CHINAWARE

SOME FACTS
AND
A STORY

P. A. S. 1932

JOHANN FRIEDRICH BÖTTGER

Inventor of European China

*

Born 1682
Died 1719

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By courtesy of the Staatlich Porzellanmanufaktur Meißen

INTRODUCTION

THERE is much confusion in the minds of the public as to what really is china. The term "china", as used by English speaking people, applies only to a thoroughly vitrified ware, one that does not discolor nor absorb moisture when broken. The term is never applied to Earthenware which at best is only partly vitrified.

China derived its name from the fact that wares of this kind were originally brought to Europe from China. In India and the East "Chini" was the name of such wares and no doubt for the same reason. In Italy it is called porcelaine a term derived from „Porcellana", the lustrous Venus-shell with which the Italians compared the smooth and shiny surface of chinaware. The same term is used by the French. In Germany and other continental countries, its name is Porzellan derived no doubt from the Italian.

Both terms "porcelaine" and "china" are wrongfully used by makers of earthenware to describe their wares, and hence the confusion.

In the pages following you will find a popular description of what china is and how it is made.

We hope that the information will fix in the minds of the reader the fact, that unvitrified or partly vitrified earthenware, no matter by what name it is called, is never "china" or "porcelaine", but only "earthenware", which for many reasons is inferior to vitrified china.

P. A. S. 1932.

HISTORICAL

PRIOR to 1602 only occasional pieces of china were brought to Europe by Portuguese traders, who sailed to and from the Orient by way of the Cape of Good Hope.

A regular trade in chinaware only developed after the founding of the Dutch East India Company in 1602. The trade soon took on such proportions and carried so much money out of various European countries that efforts were made by their Governments to have the wares produced at home, instead of importing them.

Many attempts to this end were made and it was no doubt with this in mind, that August the Strong of Saxony engaged Johann Friedrich Boettger, an alchemist, whose services had also been sought by Frederick I of Prussia. After having failed to make gold he did succeed in making china and it was in 1709 that he presented to the Elector, specimens of the first white china made in Europe. The discovery, or rather invention for such it was, was not an accident as is so often stated, but the result of carefully

planned and patiently carried out experiments; and the honor for this epoch-making invention is due solely to Boettger.

It was probably not before 1715 that he produced white ware of faultless quality; and even this was not pure white but of a yellowish or greyish cast. However, this was soon overcome and by 1730 the factory which the Elector had established in Meissen was turning out wares of excellent quality. It was about this time, also, that decorating in blue, underglaze, was perfected and that decorations like the Blue Onion pattern were produced. As the Art of making china was a new invention, all details such as the mixing of the paste and glaze; the construction of the needed machinery; the building of the kilns; and a thousand other details had to be worked out. Also gold and colors that would fire had to be perfected.

When one considers that all was new and that everything had to be tried out time and again, until the desired result was obtained, one will appreciate the amount of work done by the pioneers of this new Art.

The best talent among sculptors, modelers and painters was employed to produce the beautiful groups and figures and dinner services that graced

the tables and cabinets of the Elector and the many rulers and princes, that were patrons of the Works at Meissen. Most of them were pieces that, to this day, command the admiration of lovers of beautiful china.

The formulas and processes were strictly guarded secrets and were entrusted to but few men at a time, usually two, who looked after the mixing of the materials, etc., and the firing of the wares. But like so many secrets these, too, were soon known to other men employed about the factory. Princes and nobles, attracted by the possibilities of this new Art, bribed these men to build factories for them, and it was not long before china was made in various parts of Europe.

1718 saw china factories established in Vienna and Venice. The one in Vienna was taken over by the Empress Maria Theresa in 1744, and continued until 1864 to make those elaborate vases and beautiful figures and groups, as well as tableware, for which it was justly celebrated.

In 1750 we find one started in Berlin which, however, did not prosper; and not until 1761 when Frederick the Great of Prussia, returning from a military occupation of Dresden, brought workmen, moulds, and the needed materials from Meissen, was real progress made in Berlin. Later, in

1763, he founded the Royal Berlin Porzellan Manufactur which continues to this day. Max Joseph III of Bavaria made the factory at Nymphenburg, near Munich, a royal one in 1758 and to this day it continues to produce those pretty shepherdesses and tea sets, which pleased the ladies of that early date. The Dukes of Brunswick owned one which they had built into a hunting castle at Fürstenberg, on the peak of a hill overlooking the river Weser. This factory is still in operation, producing the groups, figures and tableware that were new in 1746.

Runaways from Meissen started a china factory in Hoechst, which enjoyed the patronage of the Archbishop-Elector of Mainz, but its career ended with the French Invasion in 1794. The factory at Frankenthal was founded in 1756 by the Counts of the Palatinate and the Dukes of Wuerttemberg had a factory in Ludwigsburg, near Stuttgart. It will be seen from this, that all of these factories were established by princes and nobles who wanted to share in the distinction and profits of the Electors of Saxony. It was the competition of the factories at Berlin and Vienna, however, that Meissen felt and resented most.

In France true china, similar to that made at Meissen, was first produced about 1769 but it was

around 1780 before all French china made was of this class. Limoges is the center of the French china industry, and French china is sometimes spoken of as "Limoges" china for this reason.

The factory at Sevres which is noted for the many beautiful pieces, vases, etc., it produced, is really the continuation of the one started in Vincennes in 1740. It became a Royal factory in 1752 and was transferred to Sevres in 1756. Louis XV and his successor and their Courts, were "royal" patrons and much of the Sevres china in the various Museums and private collections today, was made for them. Fine specimens bring fabulous prices when offered for sale, and 50,000 Dollars for a single vase is not an unheard of price. It may interest the reader to know that a vase made for Napoleon I, to commemorate his marriage to Marie Louise, cost the State about 65,000 Dollars to produce.

England produces no true china such as that made at Meissen. Its specialty is "Bone China" generally made after a formula compounded by Josiah Spode of Stoke-on-Trent, about 1800. The body is not as hard as German or French china and the glaze is softer and warmer in tone. Colors stand well on this glaze and decorations are brilliant and effective.

The principal factories of Italy were those at Capo=di=Monte, established by Charles III of Naples and at Doccia near Florence, founded by the Marchese Carlo Ginori in 1735. Both made true china. The former is best known by the wares with well modelled and daintily decorated figures in high relief. But besides these the fac= tory produced tableware, vases, etc., in great pro= fusion. It discontinued production in 1820. The Ginori factory at Doccia continues to this day and supplies the Italian market with a large variety of staple wares and decorative items of good quality and style.

Spain has no china industry worth mentioning. When Charles the III of Naples became King of Spain, he took with him workmen and models and established a factory in Madrid and con= tinued the production of wares formerly made in Naples. The factory was destroyed in the Na= poleonic War of 1812.

Of Holland and Belgium little can be said as the production of true china was limited to small efforts. In Holland a factory originally founded in Weesp and transferred to Oude Loosdrecht in 1771, made true china after the manner of Meissen. It discontinued operations in 1810. The other fac= tory located at the Hague, lasted but a few years,

from 1775 to about 1785. It, too, made wares on the Meissen order.

Denmark. The Royal Copenhagen factory has produced true china since about 1780. While it makes tablewares for the home market, its vases, figures and animals in underglaze colors are best known in this country.

Russia. There was a china factory in St. Petersburg, founded by Empress Elizabeth. Its products were on the Meissen order, and while some of the goods were sold most of them were made for the Court, for its own use and for presents.

Sweden. The factory at Marieberg near Stockholm, came into existence about 1758 but made no china until 1766. It achieved its greatest success between 1777 and 1778 and went out of existence in 1788. The other factory, at Rörstrand, was founded in 1726 and though it suspended operations for a period it is producing again.

The foregoing will give you an idea of the development in the Art of making china in the century following its invention by Boettger. But it was during the last half of the century just past, that the greatest improvements and changes were made. A better understanding of chemistry and its application to the making of china opened up

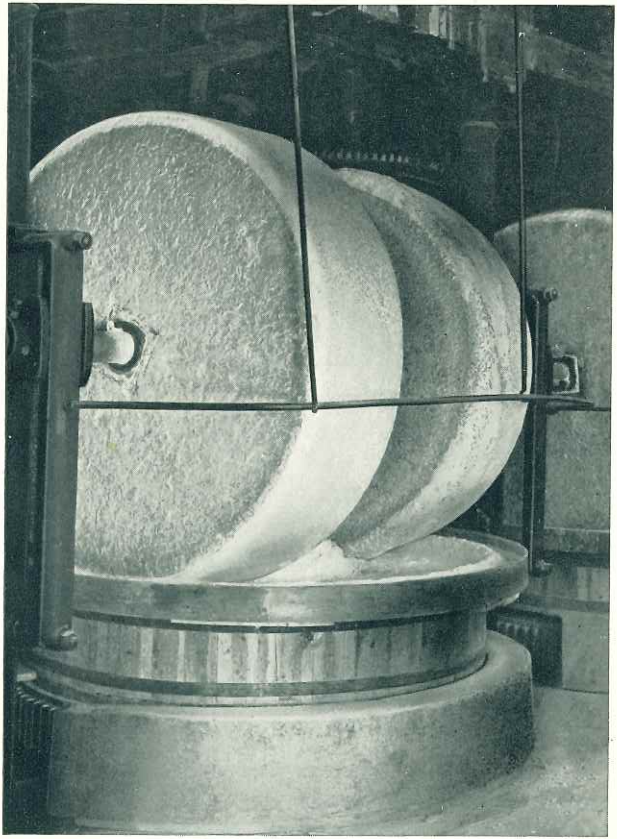
new possibilities and advantage was promptly taken of these.

From being the hobby of kings and nobles it has developed into an industry giving employment to thousands of men and women and has contributed its full share toward beautifying the home and making the serving of meals a delight. Beautiful china is today a necessity and not a luxury, the right of all and not the privilege of a few, and the wonderful improvements of the last 50 years have made this possible.

WHAT CHINA IS AND HOW IT IS MADE

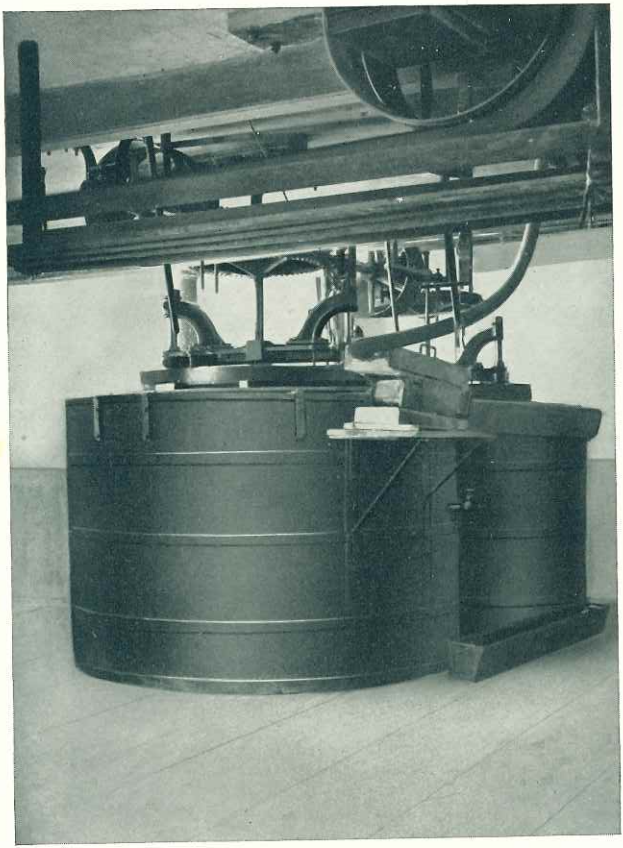
CHINA differs from all other pottery by being thoroughly vitrified and translucent and having a glassy non-absorbent texture throughout. It is not affected by acids and will not discolor nor absorb moisture or grease when chipped or broken; nor will the glaze craze and disfigure the article. Neither will it take on odors nor smells. These and many other reasons make china the ideal material for table and kitchenware.

The principal materials used in making china are kaolin (china clay), felspar and quartz. The proportions are about 50% of the kaolin to 25% each of quartz and felspar. Kaolin or china clay is found in but few places, the best coming from around Zettlitz near Carlsbad and St. Yrieix near Limoges, France. Quartz and felspar are more common and Norway supplies the best. In preparing the materials great care must be used to remove all dirt and foreign substances, particularly iron which causes those black or brown specks in the wares. The kaolin is carefully washed and is then ready for the next operation.

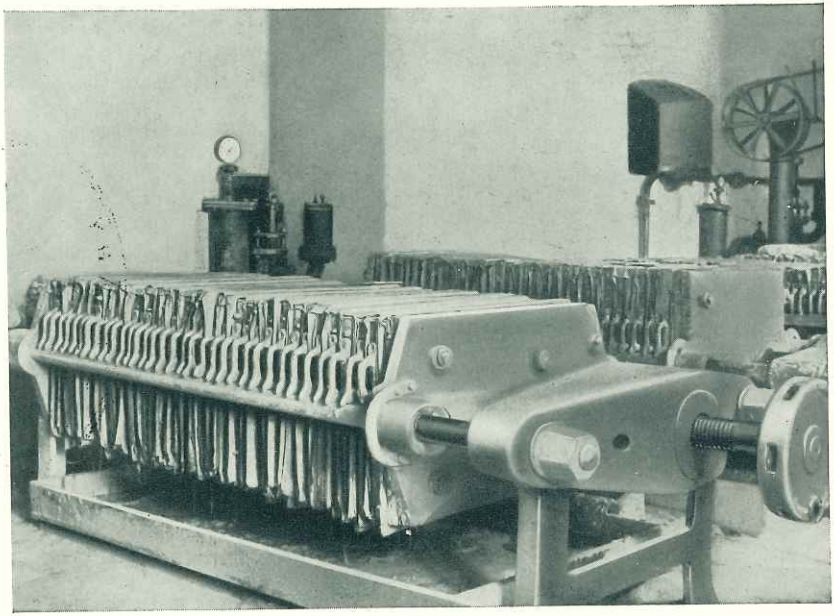


THE quartz and felspar are cleaned and then baked to make them brittle. After this, they are placed under the ponderous revolving stones of this mill, which reduces them to a coarse powder.

AS the powder is still too coarse and gritty to use, it is placed in this cylinder mill which is lined throughout with granite; and with it a proportionate amount of flint pebbles and water. The pebbles tumbling in the slowly revolving cylinder reduce the quartz and felspar to a powder so fine that it will pass through the finest of sieves.

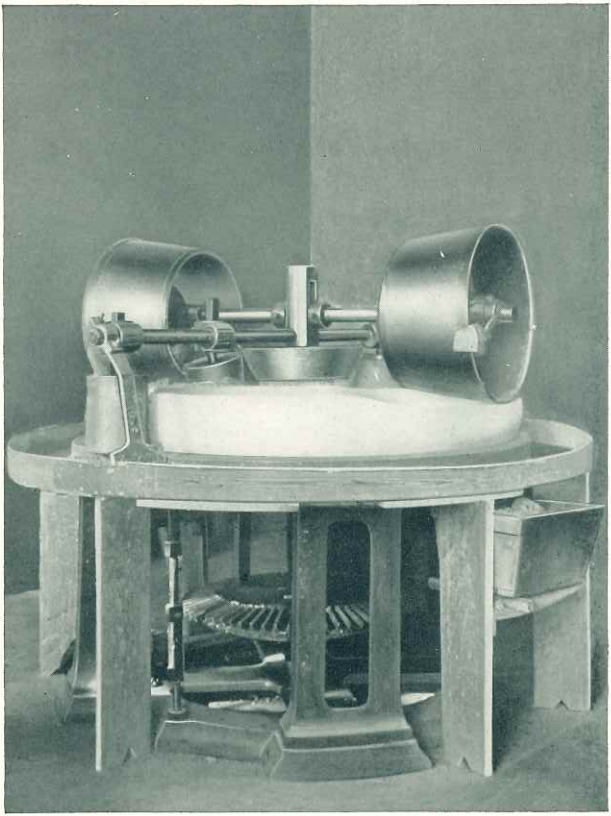


WHEN the mill has run its time, about 24 to 30 hours, its contents is drawn off into this blunger or mixer, into which a proportionate amount of the cleaned kaolin has been placed, and the three ingredients, kaolin, quartz and felspar are here thoroughly mixed.



FROM the mixer this mass is pumped into the filter press and on its way passes through a number of sieves and over magnets to remove any iron or other impurities remaining. The filter press consists of a number of frames about 2½ feet square and 3 inches in thickness, which are separated by pieces of filter cloth. Into these frames the slip is pumped and the cloths catch up and retain the solid substances, allowing only the water to filter through.

When the water has been drained off the slabs of china paste are taken out of the frames and stored in cellars and allowed to ferment or ripen, after which the material is ready for use.

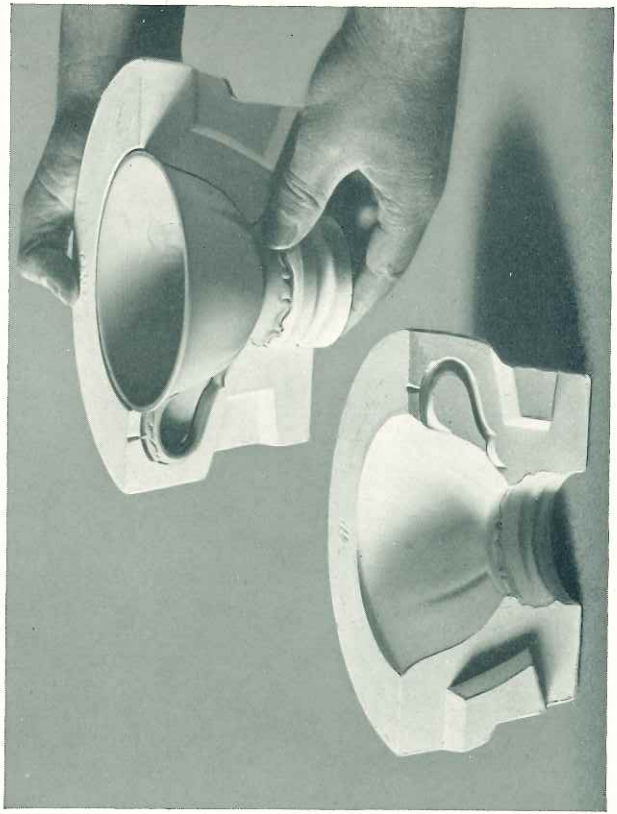


WHEN the paste is "ripe" it is brought up from the cellars and placed on this pug mill, which beats out what air there may be in it and makes it plastic and workable. It is then ready to be made into such articles as plates, cups & saucers, etc.

IT is necessary to make a model for every item to be produced, and this model is usually of plaster of Paris. As the paste contracts about a fifth in drying and firing, allowance must be made for this in the model, which is therefore made about one-fifth larger than the finished fired article.

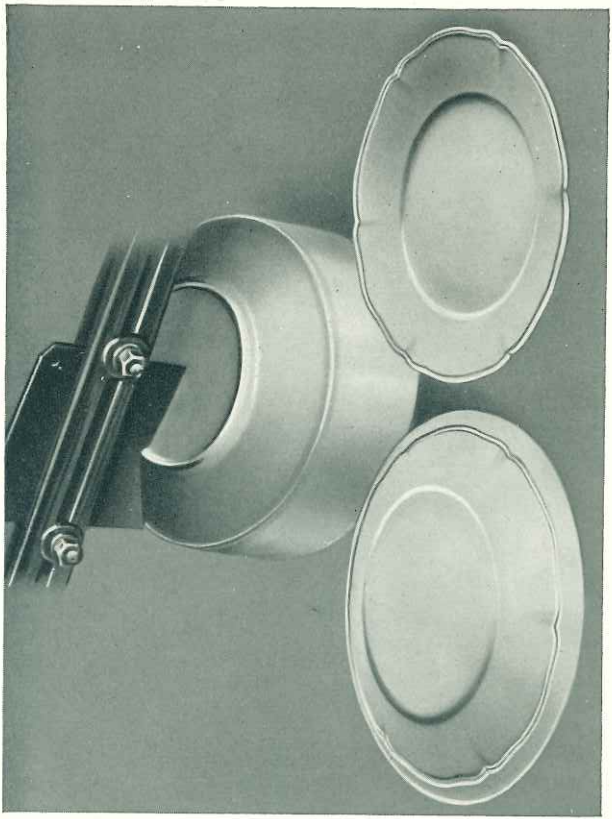
The moulds on which the ware is made are copies of the model and are also made of plaster of Paris and absorb some of the moisture in the articles made on them. As the articles must remain on the moulds until dry enough to retain their shape when removed, hundreds of moulds of such items as cups and saucers and plates, etc., are required to produce the quantities needed quickly and economically.

The picture shows the moulds for a teapot. In the center is the mould for the body; on the left the mould for the handle and on the right that for the spout. Above them the teapot with the handle already attached, and the spout being added.



HERE is shown the mould for a cast cup and you will notice that the cup is cast with the handle attached.

This is not the usual way of making cups. They are generally "jollied" and the handles are attached as shown on pages 36 and 38.



THIS picture shows to the left, the mould for a plate, and to the right a plate as taken from the mould. Notice the festooned edge and the embossments in the mould and their reproduction in the plate. Above is shown a plate in the making. The operation is better shown on pages 34 and 35.

SLIP for casting china is made by adding water and soda in certain proportions to the paste which transforms it into a heavy creamy liquid. This picture shows a young woman pouring slip into the mould for a coffee pot, some of which are seen on the shelf. This mould consists of four parts: the bottom, two middle parts and the top piece with the opening to pour in the slip. The mould is poured full of slip and as the plaster mould absorbs some of the water, it allows the solids in the slip to form themselves into a layer against the walls of the mould, and this layer is the coffee pot.

The longer the slip stands in the mould the thicker the article becomes. When the desired thickness is reached the unused slip is poured from the mould and the article cast is allowed to dry.

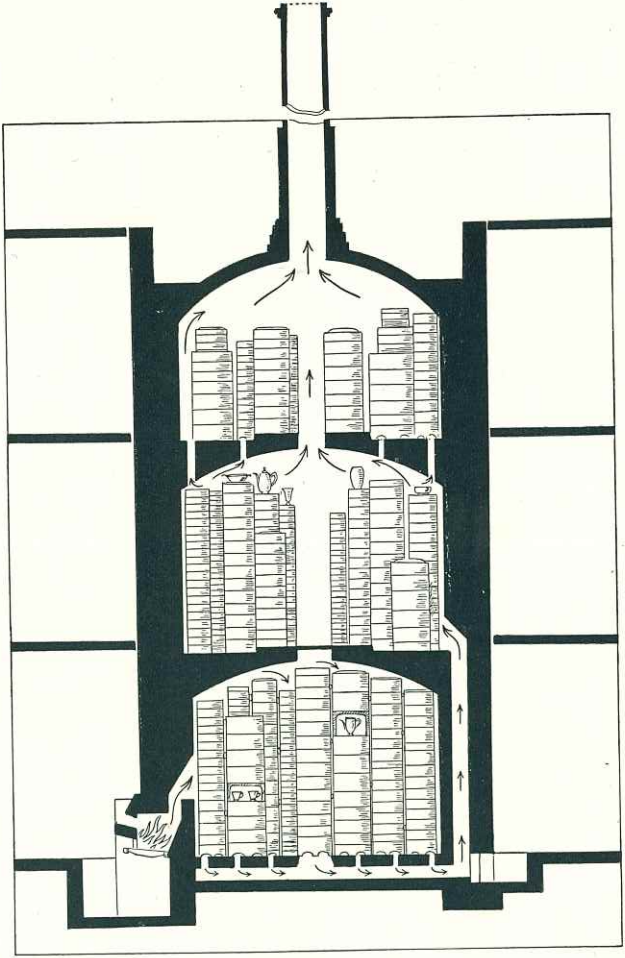
AFTER the body of the coffee pot has been removed from the mould, and while it is yet of a leathery consistency, the spout and handle are added, and thick slip is used to make them stick. The spout and handle were cast in the flat oval moulds seen on the table.

THIS young man is making a plate and is finishing the edge of it. While the mould with the plate on it revolves about 400 times a minute the black profile attached to the arm shapes the back and foot of the plate, and regulates the thickness of it. This operation is called "jollying". On the shelves are seen moulds with newly made plates. See also pages 28 and 29.

THIS man is "jollying" a cup, and the "profile" which is in the mould regulates the thickness of it. Some fancy cups are cast and then the moulds are constructed as shown on page 26, and the process of making them is described on page 31.

AFTER the cup has been taken out of the mould the handle, which is usually cast, is attached; and for this also a heavy slip is used.

Every article made, whether "cast" or "jollied". is produced as described in the preceding pages.



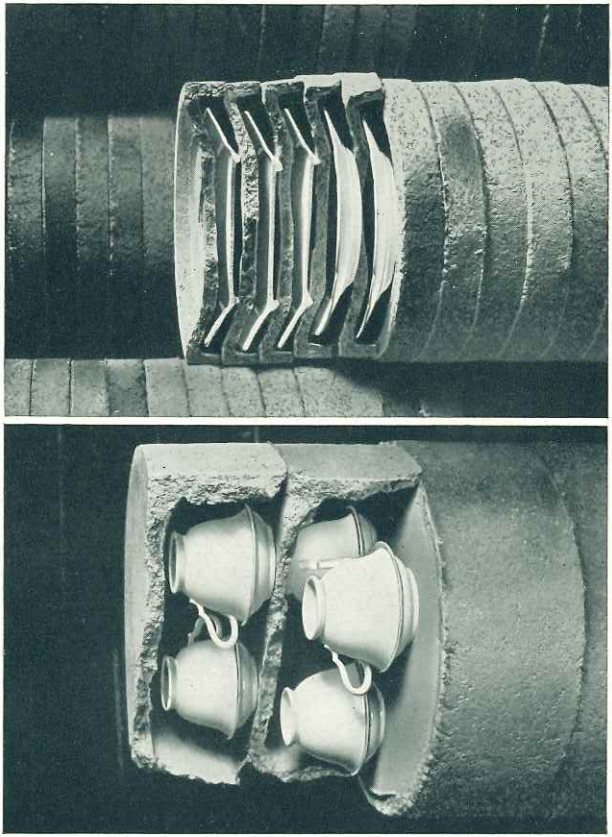
THE picture on the opposite page shows a section of a china kiln. Kilns are generally 3 stories high and the top story, where the heat is lowest, is only used to fire the saggars.

In the second story the wares receive the biscuit fire, while in the first they are exposed to the degree of heat necessary to melt the glaze and combine it with the paste. This makes the ware "china". The arrows indicate the way the heat circulates through the Kiln before escaping by the chimney.

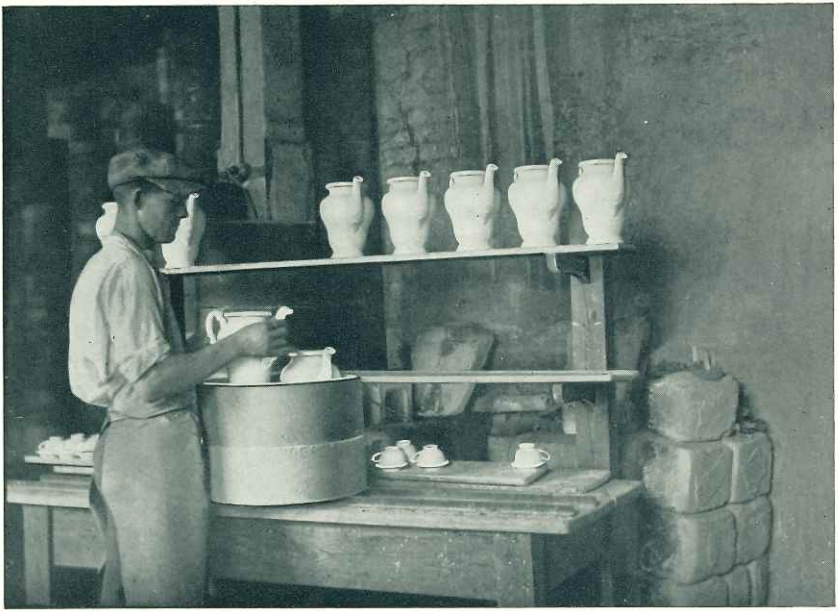
WHEN the articles have been taken out of the moulds they are allowed to dry until white. They are then given the biscuit fire, to expel what moisture there may remain. This they receive in the second story of the kiln, where the heat is not so great. For this, plates and flat pieces may be set on one another and stacked in saggars as here shown. Hollow pieces are also set in saggars for protection and ease in handling. After the biscuit fire, the wares are ready to be glazed but before this is done, the factories' trade marks are stamped upon each piece — under glaze.

WHEN the ware comes from the biscuit fire it is bone dry and quite porous and when dipped into the glaze, as shown, absorbs it as a sponge does water. It is then ready for the glost or principal fire.

The glaze (derived from the word glass) is composed of about the same substances as the paste but in different porportions and with a few additions, and it is prepared in about the same way.



TO prevent glazed pieces from melting together in firing when the glaze reaches the melting point and combines with the paste to form a vitrified body, all articles must be placed so as not to touch. This necessitates the making of a container, a "saggar" for each plate, saucer and all other flatware; and into this the plates, etc., are placed, as shown. Teapots, sugars, creams and all other hollow articles after being glazed must be placed in saggars to be fired, but a number of pieces may be placed in one saggar as long as they do not touch. Thin cups are fired on edge, on "setters" made of the same material as the cups. This insures their remaining round for if fired on foot the weight of the handle would draw the cups oval, when the glaze reaches the melting point. They are placed in saggars, far enough apart so as not to touch and as many to a saggar as the size of the cup will permit. Saggars are made of fire clay and can be used but two or three times at best and must then be replaced. The "setters" upon which thin cups and other items that are fired on edge are placed can be used but once and are then thrown away.



THIS picture shows glazed coffee pots being filled into a saggar. All hollow pieces, after being glazed, must be placed in saggars to be fired, care being taken that they do not touch.

THE filled saggars are then placed in stacks in the lower story of the kiln, and are so arranged that the wares in them get the degree of heat needed to properly fire them.

WHEN the kiln is full the opening or entrance is masoned up, with the pyrometer to measure the temperature inside the kiln in position, as shown. The heavy iron band which helps to prevent the heat from driving the kiln apart is connected and the fires started. There are generally six fire holes, placed at equal distances around the kiln. The fire must be carefully tended and coal, which is measured out in boxes as shown, must be put on at stated intervals to insure a steadily increasing or maintained heat. The fire is slowly brought up to a heat of 1400 degrees Celsius, which is about 2520 degrees Fahrenheit, and is then allowed to die down. It takes about 24 to 30 hours to fire a kiln. After the fire has been drawn, about two days must elapse before the kiln is cool enough for men to enter it and remove the saggars with the now finished wares.

The china as it comes from the kiln is carefully selected and the defective pieces removed. The remainder is then ready to be decorated.

DECORATING

THERE are two kinds of gold used in decorating china, viz: bright gold and matt or burnished gold. Bright gold is that which is generally used on the edges of plates, etc. It is fired at a low temperature and comes from the decorating kiln bright and shiny. Matt gold is that with which the handles of dinnerware, etc., are usually treated. It is richer in gold, and must be fired at a higher degree of heat than bright gold. It is dull in appearance when it comes from the kiln and must be polished with an agate, or matted or dulled by rubbing with fine sand to give it the rich appearance we know. Neither the bright gold nor the matt gold is fired into the glaze, but only onto it and it should be carefully treated, both in use and in washing, to prevent it rubbing off or scratching.

No manufacturer or dealer can assume any responsibility for gold wearing as so much depends on how it is treated in use.

The best effects in decorating china are obtained by the use of transfers or decalcomanias and, therefore, this method is generally employed. The transfers are printed in mineral colors on paper especially made for the purpose. The average pattern has from ten to fifteen colors, while the handsome centers and sprays you see on place plates, etc., and the Dresden flower decorations, have twenty-five and more colors. To transfer the pattern from the paper to the china, the surface of the article to be decorated must be covered with a light coating of sizing and when this is partly dry, the paper with the design is applied and well rolled down. The sizing holds the mineral colors in place while the paper from which they were transferred is washed away, and until the colors are fired into the glaze and become part of the ware.

Border decorations usually require a special radius or curve for every article decorated, while sprays or scattered flower designs are simpler to arrange and apply.

There is little hand painting on china done these days as this style of decoration is not in fashion. Mineral colors are applied as ordinary colors would be and the ware is then fired in the usual way.

Patterns printed from steel plates are printed on specially prepared paper and transferred to the china, much like decalcomanias are but without the use of sizing. The colors are usually full-toned and brilliant.

Underglaze decorations are decorations applied to biscuit or unglazed articles. They are glazed and fired after being decorated. The number of colors that can be used for this purpose is limited, blue in many shades being the most satisfactory and reliable.

After the china is decorated, that is, after the transfers, colors and gold have been applied, it must again be fired, this time in a decorating kiln, a picture of which is shown on the opposite page. These kilns are usually in continuous operation going day and night, the temperature varying between 1350 and 1620 degrees Fahrenheit. The wares are placed in iron "baskets" or crates and are gradually exposed to the degree of heat required to bring out the desired results. When the goods come from the decorating kiln they are again carefully examined for defects, and imperfect pieces are either repaired or replaced and the goods are then ready to be wrapped, packed and shipped and eventually they find their way to the table of the American Hostess.

CONCLUSION

THE last half century has seen many and important changes in the making of china. New processes have been added and old ones improved. Casting china which was once forbidden, is now an indispensable method for making such items as teapots, etc., also vases and many ornamental objects.

Mineral transfers or decalcomanias have replaced the old and laborious way of decorating china, viz: painting colors into printed outlines. They have enabled manufacturers to make beautiful, many colored patterns, both floral sprays and borders at prices that were unthinkable a few years ago. Tunnel kilns and improved continuous decorating kilns have made mass production possible. While not an unmixed blessing, they have enabled manufacturers to place certain staples, like cups and saucers and plates, into the hands of the masses at prices a marvel of cheapness.

Ivory china has been perfected and is today a dependable product. While special colors are required to decorate it the beautiful effects obtained fully repay the outlay. Pinks and maroons in all shades look well on it as do most colors but red which turns a dirty brown. Gold, both in plain bands and incrustations, is particularly effective on Ivory and rivals bone china in beauty while much less expensive.

New china factories have sprung up everywhere, in France, in Japan, in Czecho-Slovakia and in Germany. Of the German factories those located in Bavaria are the best known in the United States.

Prominent among these is the factory at Tirschenreuth, which was founded about 100 years ago and whose wares have graced the tables of thousands of families in America for the past fifty years.

The factory of Lorenz Hutschenreuther was established over 75 years ago. In addition to holding a commanding position in Europe it is well and favorably known in the States, for the beautiful dinnerware as well as for the collection of figures and vases which they have sent to this country. This factory and that of Paul Müller are located in Selb, the center of the Bavarian china industry.

The wares of these three factories are to be found wherever fine dinnerware and beautiful table accessories of good quality and in good taste are in demand; and are easily recognized by their trade marks, shown below, which are stamped on every article — underglaze.

IT would not do to close this little story without calling attention to the fact, that Uncle Sam collects an ad valorem duty of 70 % and in addition a specific duty of 10 cents a dozen pieces, on all decorated china tableware imported. This makes the duty on a dozen of cups & saucers that we will assume cost a dollar in Europe, 70 cents plus 20 cents or 90 cents a dozen which is 90 % of the cost. This is in excess of what is needed for protection and, therefore, increases the cost to the consumer without a corresponding advantage to American labor.

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PAUL A. STRAUB & CO.

105-107 FIFTH AVE.
AT 18th STREET NEW YORK, N.Y.

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Representing

TIRSCHENREUTH
LORENZ HUTSCHENREUTHER - SELB
PAUL MÜLLER - SELB

*

Makers of the finest of
Bavarian china
Dinnerware and Table Accessories.

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JUL 23 1940
Design Division

PRINTED IN GERMANY

PAUL A. STRAUB & CO., INC.

IMPORTERS OF CHINA AND GLASSWARE

REPRESENTING

Porzellanfabrik Tirschenreuth

PAUL MÜLLER
SELB

LORENZ HUTSCHENREUTHER
SELB

CABLE ADDRESS
PASCHINACO
NEW YORK

105-107 FIFTH AVENUE
AT EIGHTEENTH ST.
NEW YORK

RONA AND VERRA
TABLE GLASSWARE
GIFT WARES
SPECIALTIES
IN
CHINA AND GLASS

July 18, 1940

The Commissioner of Patents
Washington, D.C.

Mr. J.A. Brearley

Dear Sir:

We have yours of the 17th and regret to say that we have no catalog illustrating our line of smokers articles or list covering same.

We publish cuts showing various items, but never our complete line. This being the case, we have refrained from sending you such illustrations.

We have, however, sent you a small booklet on the making of china, which has been well received, and hoping it may be of interest to you, we remain

Yours very truly,

PAUL A. STRAUB & CO., INC.

PAS:DM